

### **SPECIAL TEMPORARY AUTHORITY JUSTIFICATION**

AALTO HAPS Limited (“AALTO”) requests special temporary authority (“STA”) for Zephyr high altitude platform system (“HAPS”) flight testing. Authority is sought for a six-month period beginning as soon as possible but no later than April 17, 2023. Consistent with FCC rules, AALTO outlines below its need for the requested authority and the compelling reasons why the requested authority should be approved expeditiously. Grant of the STA is required to satisfy test objectives and deadlines and involve personnel who are only available for a limited period of time due to other test programs and initiatives.

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AALTO is a subsidiary of Airbus Defense and Space Ltd (“Airbus”). Airbus is a longstanding global leader in the manufacture of advanced commercial and defense aircraft, helicopters, and space-technology. It has in recent years developed a range of class leading HAPS that offer the U.S. military and European allies a diverse set of capabilities and features. AALTO, in cooperation with the U.S. Army Futures Command (“US-AFC”), is presently developing the Zephyr platform.<sup>1</sup> The Zephyr employs highly efficient photovoltaic panels that convert solar energy into electrical energy to power propulsion and other onboard systems. The implementation of solar power enables the Zephyr to operate at stratospheric altitudes for extended missions lasting months, if necessary, which makes it the ideal platform to support communications for forward positions without access to reliable or secure terrestrial infrastructure, and to serve as an imaging platform for optical and synthetic aperture radar payloads. AALTO has been working collaboratively on the development of the Zephyr system with the US-AFC pursuant to prior FCC authority that authorizes testing around the U.S. Army’s Yuma Proving Ground in Arizona.<sup>2</sup>

Under the requested STA, AALTO will conduct aerial testing for all equipment and frequencies.<sup>3</sup> The testing will not adversely impact any authorized user of radiofrequency spectrum or airspace. Only highly trained AALTO personnel will conduct Zephyr platform demonstrations. The communications payloads under test involves low-power emissions, and AALTO appreciates that any operations are contingent upon prior coordination with incumbent co-frequency spectrum users. AALTO has previously been authorized to test a similar platform and has been able to do so without creating harmful interference for incumbent spectrum users.

Grant of this request will not adversely impact any authorized user of the involved radiofrequency bands or airspace. It will also serve the public interest by allowing AALTO to further evaluate and run diagnostics on Zephyr HAPS and corresponding communications payloads while helping de-risk advanced payload

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<sup>1</sup> U.S. Army Futures Command “leads a continuous transformation of Army modernization in order to provide future warfighters with the concepts, capabilities and organizational structures they need to dominate a future battlefield.” *About AFC*, Army Futures Command, <https://bit.ly/3k26z8d> (last visited Feb. 12, 2023).

<sup>2</sup> See Exhibit A; Exhibit B.

<sup>3</sup> If further experiments are necessary after the requested six-month STA period, then AALTO will file a new experimental license application.

equipment for future military and commercial use. For these reasons, AALTO requests expedited treatment and approval of its application.

## **EXHIBIT A – TECHNICAL INFORMATION**

### **I. Stop Buzzer Contact**

At all times in which the transmitters are in use, AALTO will maintain a single control point and stop buzzer capability. The contact will be capable of addressing and resolving interference concerns through any and all available means.

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### **II. Legal Contact**

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### **III. Radiofrequency and Service Area Background**

AALTO will conduct at least three missions with each lasting no greater than six months.<sup>1</sup> For each mission, the flight will depart from 32° 41' 31" N, 103° 13' 19" W in Lea, New Mexico<sup>2</sup> or 32° 58' 30" N, 114° 16' 15" W in Yuma, Arizona (individually, "geographic centerpoint"). When within 200 kilometers of either geographic centerpoint (while in range of the fixed ground station), the Zephyr will use UHF and S-band links only. When outside 200 kilometers of either geographic centerpoint (and out of range from the ground station), the Zephyr will switch to Iridium-band satellite links only.<sup>3</sup> After completing each mission, the Zephyr may land at either geographic centerpoint depending on weather conditions. The maximum altitude for each mission is 70,000 feet. Below are further operational clarifications.

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<sup>1</sup> One mission will host a UK Ministry of Defense receive-only payload. A second mission will host a U.S. Department of Defense payload that the National Telecommunications Information Administration will authorize and supervise.

<sup>2</sup> AALTO will schedule all activities with White Sands Missile Range at Spaceport America.

<sup>3</sup> Outside the 200-kilometer operational zone, the Zephyr will operate outside U.S. and other national administration waters in the Pacific Ocean basin.

Frequency Band	Transmitter Type
450-460 MHz (UHF) <sup>4</sup>	ground station <sup>5</sup>
450-460 MHz (UHF) <sup>6</sup>	HAPS
1616-1626.5 MHz (Iridium band) <sup>7</sup>	off-the-shelf Iridium terminal
1616-1626.5 MHz (Iridium band) <sup>8</sup>	satellite
2385-2405 MHz (S band) <sup>9</sup>	HAPS
2450-2470 MHz (S band)	HAPS

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<sup>4</sup> Before commencing any 450-460 MHz operations, AALTO will identify at least 16 or more channels it intends to use from the 47 C.F.R. § 90.35(b)(3) industrial/business pool frequencies and email a prior coordination notice to all relevant co-channel Part 90 licensees within a 200-kilometer operational radius of each geographic centerpoint. In other words, AALTO plans to avoid frequencies that non-Part 90 licensees use.

<sup>5</sup> The fixed antenna at the Lea, NM location is an omni antenna deployed on the corner of a temporary C-Container located on airport property. The combined antenna and support structure height will not exceed 24' above ground level. The temporary deployment has been coordinated with the Federal Aviation Administration. *See Study (ASN): 2023-ASW-924-NRA; see also Exhibit B (antenna sketch).*

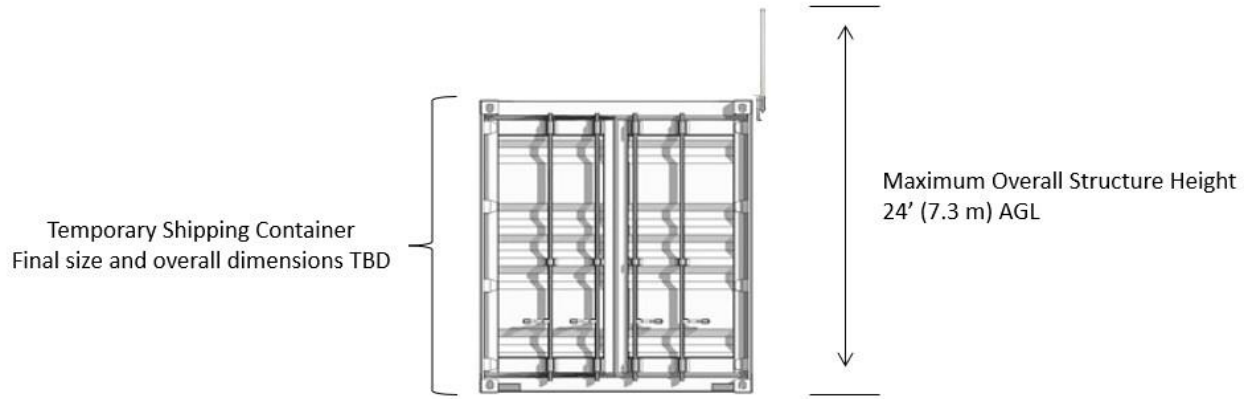
<sup>6</sup> Before commencing any 450-460 MHz operations, AALTO will identify at least 16 or more channels it intends to use from the 47 C.F.R. § 90.35(b)(3) industrial/business pool frequencies and email a prior coordination notice to all relevant co-channel Part 90 licensees within a 200-kilometer operational radius of each geographic centerpoint. In other words, AALTO plans to avoid frequencies that non-Part 90 licensees use.

<sup>7</sup> Operations will occur consistent with existing Iridium authorizations. As a result, no further FCC authorization is sought for this frequency band in this application. This disclosure is for informational purposes only.

<sup>8</sup> Operations will occur consistent with existing Iridium authorizations. As a result, no further FCC authorization is sought for this frequency band in this application. This disclosure is for informational purposes only.

<sup>9</sup> AALTO files this application before finishing AFTRCC coordination given the time sensitivity. It will submit the agreement as soon as feasible.

**EXHIBIT B – UHF ANTENNA SKETCH**



\*\*\* Drawing not to scale and for illustrative purposes only \*\*\*